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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,229	09/25/2001	Vaughn R. Marian	2001P 16465 US	1823

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Siemens Corporation
Intellectual Property Department
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EXAMINER	
JUNG, WILLIAM C	
ART UNIT	**PAPER NUMBER**
3737	

DATE MAILED: 04/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/964,229	MARIAN, VAUGHN R.	
	Examiner	Art Unit	
	William Jung	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25th September 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Fujio et al*** (US 5,471,988) in view of ***Nakamura et al*** (US 5,469,852) and ***Abenaim*** (US 5,235,964).

Fujio substantially discloses of claimed inventions in claims 1, 3-11, and 13-17. Fujio discloses of ultrasound probe in conjunction of therapeutic method where the probe is inserted into the patient. The probe is comprised of ultrasonic transducer (col. 9, line 14-21) encapsulated in tubular housing with gripping portion for the operator to guide the probe. The grip portion of the housing is adjacent to bendable curvature portion, which is adjacent to the transducer portion of the probe (col. 9, line 28-48). The bendable portion of the probe has pin like structure with wire where the purpose is the increase and decrease tension to control the angular movement in longitudinal direction of the probe (col. 11, line 18-28).

Nakamura discloses in figures 3 A-C of probe design with circular transducer array with flexible board wound around the backing portion 30 and driven pulley. The probe also comprise of an acoustic lens made of acoustic matching layer (col. 5, line 55-66; col. 6, line 9-27). In addition, in figure 4, Nakamura discloses of longitudinal portion of the transducer where a drive pulley creates tension on a wire to rotate the transducer (col. 6, line 28-34).

Abenaim discloses of flexible probe apparatus where the mechanism of bendable portion of the probe is comprised of conventional rack and pinion system as shown in figure 3. In figure 4, Abenaim discloses of manipulation of tension wire to bend a desired amounts in a desired direction (col. 5, line 4-20).

The motivation of the claimed invention was to improve the flexible transducer design as taught by Fujio in application of intraoperative probe with the mechanical means provided by the teachings of Nakamura and Abenaim. Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to apply the teachings of Fujio to the teachings of Nakamura and Abenaim to achieve claimed inventions.

3. Claims 2, 12, and 19-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Fujio et al***, ***Nakamura et al***, and ***Abenaim*** as applied to claims 1, 3-11, and 13-18 above, and further in view of ***Dias*** (US 5,488,955) and ***Law et al*** (US 5,469,853).

Dias substantially discloses of claimed inventions in claims 2, 12, 18, and 26. Dias disclosed in figures 1A-B where the Doppler acoustic probe is designed to rotate via clamp with motor (col. 4, line 9-14).

Law discloses of bendable ultrasound probe for ultrasound imaging during endosurgical operation. Law claims of ultrasound probe where the bendable portion comprises a pinned joint, a spring that is biased to bend the bendable portion, and an angled notch into one side of bendable portion such that bending of bendable portion to close angled notch positions bendable portion at a predetermined bend angle (figures 9A, 9B, 42A, 42B, 32, and 33). More specifically in figures 9A-B, Law shows a perspective view and a cross sectional view along the longitudinal axis of a rigid sheath **140** that is of a tubular shape designed to cover a generally tubular shaped

laparoscopic probe having an ultrasonic device. The rigid sheath **140** has a first terminal end **142** that is inserted into a patient's body cavity along with the probe and a second terminal end 144 that remains outside of the body at all times. To cover a laparoscopic probe with the rigid sheath **140**, the probe is inserted into the internal, hollow space **146** of the sheath. The rigid sheath **140** is preferably shaped to provide a close fit to the probe to be covered. Therefore, a tubular shaped sheath should be used to cover a tubular probe. Also, the fit between the laparoscopic probe and the rigid sheath should be of a close tolerance. Preferably, the maximum outside diameter of a tubular probe to be inserted into a tubular sheath should be not more than about 0.15 mm smaller than the internal diameter **148** of the rigid sheath **140**. The sheath **150**, is preferably keyed with and latched to the probe inserted into the sheath in any fashion that prevents the sheath and the inserted probe from moving relative to one another during use of the probe. For example, the portion of probe, or the probe handle, which remain outside of the body during use could have a protrusion that corresponds to a keyed slot or recess in the sheath. The protrusion could also be spring actuated, for example, to **latch** into a recess in the sheath, thereby preventing the sheath and probe from moving relative to one another in either a rotational or translational direction (col. 8, line 1-28).

As disclosed above in claims 1, 3-11, and 13-18, Fujio, Nakamura, and Abenaim illustrated ultrasound probe where the probe is designed to be inserted into a patient with capability of bending by manipulation of tension wire. The mechanism of the manipulation includes ball joint such as rack and pinions, flexible covering materials such as silicone, hinges and metal shaft, and transducer array with acoustic window.

The flexible probe as stated above in claims 1, 3-11, and 13-18, the further improvement is motivated by the teachings of Dias and Law where the probe may be rotated mechanically and flexible circuitry described above. Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to apply the teachings of Dias to the teachings of Fujio, Nakamura, and Abenaim to achieve the claimed inventions.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Jung whose telephone number is 703-605-4364. The examiner can normally be reached on Mon-Fri 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on 703-305-3256. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0758 for regular communications and 703-308-0758 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

William Jung
Examiner
Art Unit 3737

wcj
March 18, 2002

Francis J. Jaworski
Primary Examiner